



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
14.12.2011 Bulletin 2011/50

(51) Int Cl.:
F16H 1/28 (2006.01)

(43) Date of publication A2:
04.11.2009 Bulletin 2009/45

(21) Application number: **09159114.9**

(22) Date of filing: **29.04.2009**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR
Designated Extension States:
AL BA RS

(30) Priority: **29.04.2008 GB 0807778**

(71) Applicant: **Romax Technology Limited**
Nottingham, Nottinghamshire NG7 2PZ (GB)

(72) Inventors:
• **Poon, Siu Yun**
Nottingham, Nottinghamshire NG7 1EY (GB)
• **Barnes, Michael Cosmo**
Doncaster, Yorkshire DN10 4NB (GB)

(74) Representative: **Thould, Lee Matthew et al**
Swindell & Pearson Limited
48 Friar Gate
Derby DE1 1GY (GB)

(54) **Apparatus and method for improving radial stresses in a gear transmission mounting**

(57) There is provided a pin and mounting assembly for supporting a gear of an epicyclic or parallel shaft transmission. The pin and mounting assembly comprises: a mounting (4) which has a first interference surface; and a pin (2) which has a second interference surface. The second interference surface is adapted for engagement with the first interference surface to establish an interference fit (6). The first and/or second interference surface defines an open ended volume such as a cylinder, cuboid or frustum and a longitudinal axis of the interference fit is defined as extending through the volume. A section through at least a part of the first and/or second interference surface on the longitudinal axis describes a curved interference depth with at least one maximum and/or minimum.

ence fit (6). The first and/or second interference surface defines an open ended volume such as a cylinder, cuboid or frustum and a longitudinal axis of the interference fit is defined as extending through the volume. A section through at least a part of the first and/or second interference surface on the longitudinal axis describes a curved interference depth with at least one maximum and/or minimum.

Flexible pin compression fitting

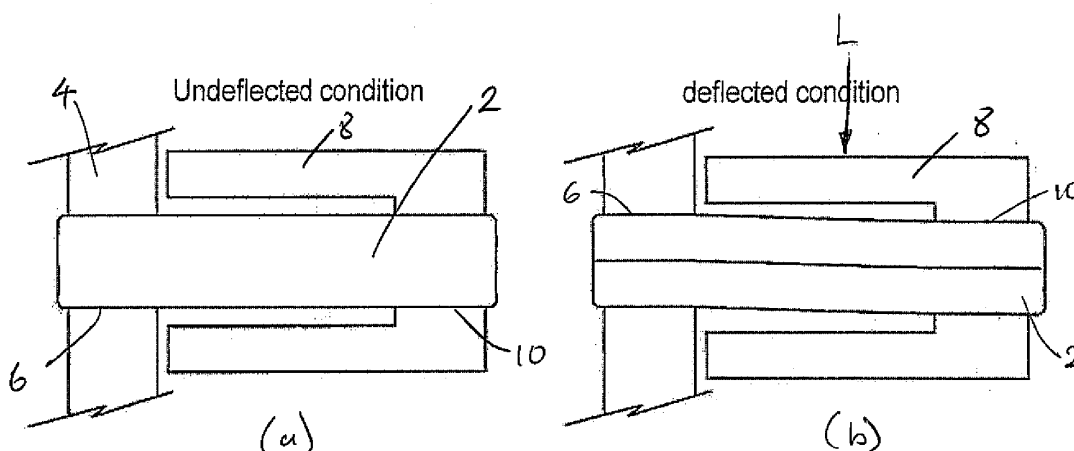
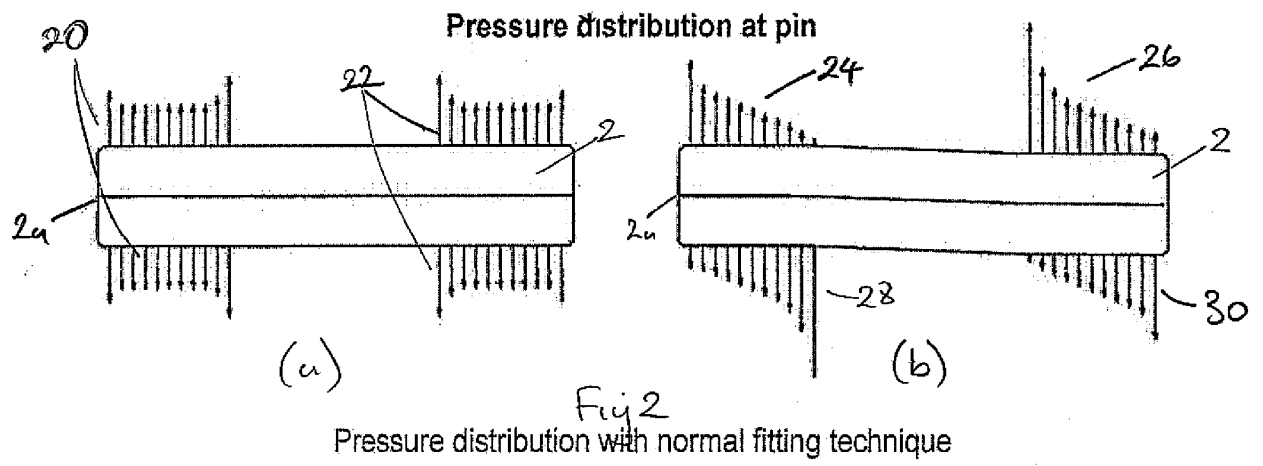


Fig 1
Pressure distribution at pin





EUROPEAN SEARCH REPORT

Application Number
EP 09 15 9114

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 2007/028965 A1 (ORBITAL2 LTD [GB]; CUNLIFFE FRANK [GB]; HICKS RAY JOHN [GB]) 15 March 2007 (2007-03-15) * figure 1 *	1-19	INV. F16H1/28
X	EP 1 559 928 A2 (NORDEX ENERGY GMBH [DE]) 3 August 2005 (2005-08-03) * figures 1-3 *	1-19	
X	WO 2007/016336 A2 (TIMKEN CO [US]; FOX GERALD [US]) 8 February 2007 (2007-02-08) * figures 1-5 *	1-19	
X	US 2005/075211 A1 (FOX GERALD P [US] ET AL) 7 April 2005 (2005-04-07) * figures 1-5 *	1-19	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			F16H
2	Place of search Munich	Date of completion of the search 31 October 2011	Examiner Szodfridt, Tamas
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.82 (F04C01)



Application Number

EP 09 15 9114

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



**LACK OF UNITY OF INVENTION
SHEET B**

Application Number

EP 09 15 9114

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-16

A pin and mounting assembly and a manufacturing method for it.

2. claims: 17-19

A method for determining the profile of a first and/or second interference surface.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 09 15 9114

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

31-10-2011

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 2007028965 A1		15-03-2007	AT 487068 T	15-11-2010
			CA 2621321 A1	15-03-2007
			CN 101273215 A	24-09-2008
			EP 1941181 A1	09-07-2008
			ES 2355652 T3	29-03-2011
			KR 20080045731 A	23-05-2008
			US 2008269007 A1	30-10-2008

EP 1559928 A2		03-08-2005	AT 469314 T	15-06-2010
			DE 102004004351 A1	18-08-2005
			ES 2345661 T3	29-09-2010

WO 2007016336 A2		08-02-2007	EP 1910708 A2	16-04-2008
			EP 2055986 A2	06-05-2009
			JP 2009503415 A	29-01-2009
			US 2008194378 A1	14-08-2008

US 2005075211 A1		07-04-2005	AT 516456 T	15-07-2011
			EP 1673553 A1	28-06-2006
			WO 2005038296 A1	28-04-2005
